IN THE CLAIMS

1. (Currently Amended) A video processing method comprising the steps of:

dividing an input data region representative of a range of digital luminance data into a plurality of regions comprising substantially all of said input data region;

selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions; and

correcting digital luminance data in accordance with said selected output data correction characteristic;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

2. (Currently Amended) A video processing method comprising the steps of:

dividing an input data region representative of a range of digital color difference data into a plurality of regions comprising substantially all of said input data region;

selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions; and

executing gain control or hue control with regard to digital color difference data or other digital color data;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

3. (Currently Amended) A video processing method comprising the steps of:

dividing an input data region representative of a range of color difference data into a plurality of regions comprising substantially all of said input data region;

selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions;

separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed; and

executing gain control or hue control with regard to the separated color difference data;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

4. (Currently Amended) A video processing method comprising the steps of:

dividing an input data region representative of a range of digital luminance data into a plurality of regions comprising substantially all of said input data region;

selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions;

wherein at least one of said output data characteristics is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in said first region where the gain is greater than one, a linear portion in said second region where the gain is equal to one exactly or approximately, and a linear portion in said third region where the gain is smaller than one; and

wherein at least one of said output data characteristics is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of linear portions in said first and third regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one; and

correcting digital luminance data in accordance with the selected output data correction characteristic;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

5. (Currently Amended) A video processing method comprising the steps of:

dividing an input data region representative of a range of color difference data into a plurality of regions comprising substantially all of said input data region;

selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions;

wherein one of said plurality of output data correction characteristics is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, and one of said plurality of output data correction characteristics is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of linear portions in said first and third regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one;

correcting the digital luminance data in accordance with the selected output data correction characteristic; and

executing gain control or hue control with regard to digital color difference data or other digital color data;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

6. (Currently Amended) A video processing method comprising the steps of:

dividing an input data region representative of a range of color difference data into a plurality of regions comprising substantially all of said input data region;

selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions;

separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed;

wherein one of said plurality of output data correction characteristics is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, and one of said plurality of output data correction characteristics is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of linear portions in said first and third regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one;

correcting the separated luminance data in accordance with the selected output data correction characteristic; and

executing gain control or hue control with regard to the separated color difference data;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

7. (Previously Presented) The video processing method according to claim 1, wherein said selected output data correction characteristic equalizes the width of the first region and that of the third region to each other.

8. (Previously Presented) The video processing method according to claim 4, wherein selected output data correction characteristic equalizes the sum of the widths of the first and third regions to the width of the second region.

9. (Currently Amended) A video processing device for dividing an input data region representative of a range of digital luminance data into a plurality of regions comprising substantially all of said input data region and for selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions, comprising:

a component generator for generating components including post-correction output luminance data in first, second and third regions from pre-correction input luminance data and data which determine the boundary value between the first and second regions and the boundary value between the second and third regions; and

a selective compositor for selecting the components generated by said component generator in response to signals for identifying the first, second and third regions, and producing post-correction output luminance data over the input data region of the input luminance data;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

10. (Currently Amended) A video processing device for dividing an input data region representative of a range of digital color difference data into a plurality of regions comprising substantially all of said input data region and for selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions, comprising:

a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed; and

a luminance corrector circuit for correcting the luminance data separated by said data separator circuit;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

11. (Currently Amended) A video processing device for dividing an input data region representative of a range of digital color difference data into a plurality of regions comprising substantially all of said input data region and for selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions, comprising:

a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed; and

a luminance corrector circuit for correcting the luminance data separated by said data separator circuit, wherein one of said plurality of output data correction characteristics is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, and one of said plurality of output data correction characteristics is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of linear portions in said first and third regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

12. (Currently Amended) A video processing device for dividing an input data region representative of a range of digital color difference data into a plurality of regions comprising substantially all of said input data region and for selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions, comprising:

a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed;

a luminance corrector circuit for correcting the luminance data separated by said data separator circuit; and

a control processing circuit for executing gain control or hue control with regard to the color difference data separated by said data separator circuit;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

13. (Currently Amended) A video processing device for dividing an input data region representative of a range of digital color difference data into a plurality of regions comprising substantially all of said input data region and for selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions, comprising:

a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed;

a luminance corrector circuit for correcting the luminance data separated by said data separator circuit, wherein one of said plurality of output data correction characteristics is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, and one of said plurality of output data correction characteristics is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of linear portions in said first and third regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one; and

a control processing circuit for executing gain control or hue control with regard to the color difference data separated by said data separator circuit;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

14. (Original) The video processing device according to claim 10, further comprising a data compositor circuit for compositing the output luminance data of said luminance corrector circuit and the output color difference data of said data separator circuit or said control processing circuit.

15. (Original) The video processing device according to claim 11, further comprising a data compositor circuit for compositing the output luminance data of said luminance corrector circuit and the output color difference data of said data separator circuit or said control processing circuit.

16. (Original) The video processing device according to claim 12, further comprising a data compositor circuit for compositing the output luminance data of said luminance corrector circuit and the output color difference data of said data separator circuit or said control processing circuit.

17. (Currently Amended) A digital video appliance comprising, as a video processor therein, a video processing device for dividing an input data region representative of a range of digital luminance data into a plurality of regions comprising substantially all of said input data region and for selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions; said video processing device comprising:

a component generator for generating components including post-correction output luminance data in first, second and third regions from pre-correction input luminance data and data which determine a boundary value between the first and second regions and a boundary value between the second and third regions; and

a selective compositor for selecting the components generated by said component generator in response to signals for identifying the first, second and third regions, and producing post-correction output luminance data over the input data region of the input luminance data;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

18. (Currently Amended) A digital video appliance comprising, as a video processor therein, a video processing device for dividing an input data region representative of a range of digital color difference data into a plurality of regions comprising substantially all of said input data region and for selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions, comprising:

a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed; and

a luminance corrector circuit for correcting the luminance data separated by said data separator circuit;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

19. (Currently Amended) A digital video appliance comprising, as a video processor therein, a video processing device for dividing an input data region representative of a range of digital color difference data into a plurality of regions comprising substantially all of said input data region and for selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions, comprising:

a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed; and

a luminance corrector circuit for correcting the luminance data separated by said data separator circuit, wherein one of said plurality of output data correction characteristics is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one and, and one of said plurality of output data correction characteristics is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of linear portions in said first and third regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

20. (Currently Amended) A digital video appliance comprising, as a video processor therein, a video processing device for dividing an input data region representative of a range of digital color difference data into a plurality of regions comprising substantially all of said input data region and for selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions, comprising:

a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed;

a luminance corrector circuit for correcting the luminance data separated by said data separator circuit; and

a control processing circuit for executing gain control or hue control with regard to the color difference data separated by said data separator circuit;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

21. (Currently Amended) A digital video appliance comprising, as a video processor therein, a video processing device for dividing an input data region representative of a range of digital color difference data into a plurality of regions comprising substantially all of said input data region and for selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions, comprising:

a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed;

a luminance corrector circuit for correcting the luminance data separated by said data separator circuit, wherein one of said plurality of output data correction characteristics is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, and one of said plurality of output data correction characteristics is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of linear portions in said first and third regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one; and

a control processing circuit for executing gain control or hue control with regard to the color difference data separated by said data separator circuit;

wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics.

22. (Original) The digital video appliance according to claim 17, further comprising:

a memory capable of holding the stored content without any power supply or with a backup power supply; and

a controller for writing a control state relative to video data as a control parameter in said memory correspondingly to video identification information which specifies the video, or to characteristic descriptive information which describes the image characteristic, wherein, when the video data are to be outputted, said controller reads out the control parameter from said memory if the video identification information or the characteristic descriptive information relative to the output video data is stored in said memory and also if the control parameter corresponding to such information is stored therein, and said controller sets the control state for the output video data in accordance with the control parameter thus read out.

23. (Original) The digital video appliance according to claim 18, further comprising:

a memory capable of holding the stored content without any power supply or with a backup power supply; and

a controller for writing a control state relative to video data as a control parameter in said memory correspondingly to video identification information which specifies the video, or to characteristic descriptive information which describes the image characteristic, wherein, when the video data are to be outputted, said controller reads out the control parameter from said

memory if the video identification information or the characteristic descriptive information relative to the output video data is stored in said memory and also if the control parameter corresponding to such information is stored therein, and said controller sets the control state for the output video data in accordance with the control parameter thus read out.

24. (Original) The digital video appliance according to claim 19, further comprising:

a memory capable of holding the stored content without any power supply or with a backup power supply; and

a controller for writing a control state relative to video data as a control parameter in said memory correspondingly to video identification information which specifies the video, or to characteristic descriptive information which describes the image characteristic, wherein, when the video data are to be outputted, said controller reads out the control parameter from said memory if the video identification information or the characteristic descriptive information relative to the output video data is stored in said memory and also if the control parameter corresponding to such information is stored therein, and said controller sets the control state for the output video data in accordance with the control parameter thus read out.

25. (Original) The digital video appliance according to claim 20, further comprising:

a memory capable of holding the stored content without any power supply or with a backup power supply; and

a controller for writing a control state relative to video data as a control parameter in said memory correspondingly to video identification information which specifies the video, or to characteristic descriptive information which describes the image characteristic, wherein, when

the video data are to be outputted, said controller reads out the control parameter from said memory if the video identification information or the characteristic descriptive information relative to the output video data is stored in said memory and also if the control parameter corresponding to such information is stored therein, and said controller sets the control state for the output video data in accordance with the control parameter thus read out.

26. (Original) The digital video appliance according to claim 21, further comprising:

a memory capable of holding the stored content without any power supply or with a backup power supply; and

a controller for writing a control state relative to video data as a control parameter in said memory correspondingly to video identification information which specifies the video, or to characteristic descriptive information which describes the image characteristic, wherein, when the video data are to be outputted, said controller reads out the control parameter from said memory if the video identification information or the characteristic descriptive information relative to the output video data is stored in said memory and also if the control parameter corresponding to such information is stored therein, and said controller sets the control state for the output video data in accordance with the control parameter thus read out.

27. (Previously Presented) The video processing method according to claim 1, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in said first region where the gain is greater than one, a linear portion in said second region where the gain is equal to one exactly or approximately, and a linear portion in said third region where the gain is smaller than one.

28. (Previously Presented) The video processing method according to claim 1, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in said first region where the gain is greater than one, a linear portion in said second region where the gain is equal to one exactly or approximately, and a linear portion in said third region where the gain is smaller than one.

29. (Previously Presented) The video processing method according to claim 2, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

30. (Previously Presented) The video processing method according to claim 2, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

31. (Previously Presented) The video processing method according to claim 3, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

32. (Previously Presented) The video processing method according to claim 3, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

33. (Previously Presented) The video processing device according to claim 9, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

34. (Previously Presented) The video processing device according to claim 9, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

35. (Previously Presented) The video processing device according to claim 10, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

36. (Previously Presented) The video processing device according to claim 10, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

37. (Previously Presented) The video processing device according to claim 12, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

38. (Previously Presented) The video processing device according to claim 12, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

39. (Previously Presented) The video processing appliance according to claim 17, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

40. (Previously Presented) The video processing appliance according to claim 17, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

41. (Previously Presented) The video processing appliance according to claim 18, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

42. (Previously Presented) The video processing appliance according to claim 18, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

43. (Previously Presented) The video processing appliance according to claim 20, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

44. (Previously Presented) The video processing appliance according to claim 20, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.